

7/6/2016

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Richland

2800 George Washington Way

Richland, WA 99352

Tel: (509)375-3131

TestAmerica Job ID: 300-3246-1

TestAmerica Sample Delivery Group: WC1149

Client Project/Site: F16-043

For:


CH2M Hill Plateau Remediation Company

PO BOX 1600

Mail Stop R3-50

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

7/6/2016 10:28:23 AM

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### LINKS

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[www.testamericainc.com](http://www.testamericainc.com)

*I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the attached signature.*

*The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples. The sample/ sample duplicate RPD agreement is not applicable if one or both results are less than five times the MDL.*

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## Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

## Qualifiers

## General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.
D	The reported value is from a dilution.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Case Narrative

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

**Job ID: 300-3246-1**

**Laboratory: TestAmerica Richland**

**Narrative****Job Narrative  
300-3246-1****Comments**

No additional comments.

**Receipt**

The sample was received on 6/9/2016 1:55 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.9° C.

**General Chemistry**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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CH2M Hill Plateau Remediation Company				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F16-043-038		PAGE 1 OF 1	
COLLECTOR J.R. Aguilera/CH2MPC		COMPANY CONTACT TODAK, D		TELEPHONE NO. 376-6427		PROJECT COORDINATOR TODAK, D		PRICE CODE 8C		DATA TURNAROUND 15 Days / 15 Days	
SAMPLING LOCATION C9401, 1-004		PROJECT DESIGNATION 100-NR-2 Drilling - Soil		FIELD LOGBOOK NO. H25-N-645-3/86		ACTUAL SAMPLE DEPTH 66.50' - 69.0'		SAF NO. F16-043		AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. N/A		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		METHOD OF SHIPMENT GOVERNMENT VEHICLE		ORIGINAL			
SHIPPED TO TestAmerica Incorporated, Richland											
MATRIX* A=Air DL=Drum L=Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA		PRESERVATION Cool <=6C		HOLDING TIME 30 Days		TYPE OF CONTAINER G/P		NO. OF CONTAINER(S) 1	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		VOLUME 60mL		7196 CR6: COMMON;		Due to 24-12			
SAMPLE NO. B35VP7		MATRIX* SOIL		SAMPLE DATE JUN 09 2016		SAMPLE TIME 0830		✓			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM J.R. Aguilera/CH2MPC		RECEIVED BY/STORED IN J. Bock, TARL		SPLIT SPOON PARTS B & A WILL BE COMBINED TO ENSURE ADEQUATE SAMPLE MATERIAL FOR ANALYSIS; SAMPLE A AND B PORTION SAMPLES B35VP6, B35VP7, V35VP8	
DATE/TIME JUN 09 2016 1135		DATE/TIME JUN 09 2016 1355			
RELINQUISHED BY/REMOVED FROM J. Bock, TARL		RECEIVED BY/STORED IN J. Bock, TARL			
DATE/TIME JUN 09 2016 1355		DATE/TIME JUN 09 2016 1355			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
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DATE/TIME		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
LABORATORY SECTION		RECEIVED BY		TITLE	
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY	
DATE/TIME		DATE/TIME		DATE/TIME	

PRINTED ON 6/9/2016

FSR ID = FSR32674

TRVL NUM = TRVL-16-153

A-6003-618 (REV 2)

300-3246 COC



Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

Client Sample ID: B35VP7

Lab Sample ID: 300-3246-1

No Detections.

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## Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

**Client Sample ID: B35VP7**

**Date Collected: 06/09/16 08:30**

**Date Received: 06/09/16 13:55**

**Lab Sample ID: 300-3246-1**

**Matrix: Soil**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg		06/28/16 16:39	06/20/16 18:04	1

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## QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

## Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-4724/1-A

Matrix: Solid

Analysis Batch: 4723

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 4724

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg	-	06/28/16 16:39	06/20/16 17:48	1

Lab Sample ID: LCS 300-4724/2-A

Matrix: Solid

Analysis Batch: 4723

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 4724

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	20.0	18.12		mg/Kg	-	91	85 - 115

Lab Sample ID: 300-3142-A-1-F MS

Matrix: Solid

Analysis Batch: 4723

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 4724

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.15	U	29.8	25.82		mg/Kg	-	87	75 - 125

Lab Sample ID: 300-3142-A-1-H MSI

Matrix: Solid

Analysis Batch: 4723

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 4724

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.15	U	674	695.3	D	mg/Kg	-	103	

Lab Sample ID: 300-3142-A-1-G DU

Matrix: Solid

Analysis Batch: 4723

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 4724

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.15	U	0.15	U	mg/Kg	-	NC	35

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## QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

## General Chemistry

## Analysis Batch: 4723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3142-A-1-F MS	Matrix Spike	Total/NA	Solid	7196A	4724
300-3142-A-1-G DU	Duplicate	Total/NA	Solid	7196A	4724
300-3142-A-1-H MSI	Matrix Spike	Total/NA	Solid	7196A	4724
300-3246-1	B35VP7	Total/NA	Soil	7196A	4724
LCS 300-4724/2-A	Lab Control Sample	Total/NA	Solid	7196A	4724
MB 300-4724/1-A	Method Blank	Total/NA	Solid	7196A	4724

## Prep Batch: 4724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3142-A-1-F MS	Matrix Spike	Total/NA	Solid	3060A	
300-3142-A-1-G DU	Duplicate	Total/NA	Solid	3060A	
300-3142-A-1-H MSI	Matrix Spike	Total/NA	Solid	3060A	
300-3246-1	B35VP7	Total/NA	Soil	3060A	
LCS 300-4724/2-A	Lab Control Sample	Total/NA	Solid	3060A	
MB 300-4724/1-A	Method Blank	Total/NA	Solid	3060A	

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## Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

## Client Sample ID: B35VP7

Date Collected: 06/09/16 08:30

Date Received: 06/09/16 13:55

## Lab Sample ID: 300-3246-1

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	2.5023 g	100 mL	4723	06/20/16 18:04	TDA	TAL RCH
Total/NA	Prep	3060A			2.5023 g	100 mL	4724	06/28/16 16:39	TDA	TAL RCH

## Client Sample ID: Duplicate

Date Collected: 05/25/16 14:00

Date Received: 05/26/16 16:00

## Lab Sample ID: 300-3142-A-1-G DU

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	2.5107 g	100 mL	4723	06/20/16 17:53	TDA	TAL RCH
Total/NA	Prep	3060A			2.5107 g	100 mL	4724	06/28/16 16:39	TDA	TAL RCH

## Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

## Lab Sample ID: LCS 300-4724/2-A

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	2.5 g	100 mL	4723	06/20/16 17:49	TDA	TAL RCH
Total/NA	Prep	3060A			2.5 g	100 mL	4724	06/28/16 16:39	TDA	TAL RCH

## Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

## Lab Sample ID: MB 300-4724/1-A

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	2.5 g	100 mL	4723	06/20/16 17:48	TDA	TAL RCH
Total/NA	Prep	3060A			2.5 g	100 mL	4724	06/28/16 16:39	TDA	TAL RCH

## Client Sample ID: Matrix Spike

Date Collected: 05/25/16 14:00

Date Received: 05/26/16 16:00

## Lab Sample ID: 300-3142-A-1-F MS

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	2.5116 g	100 mL	4723	06/20/16 17:52	TDA	TAL RCH
Total/NA	Prep	3060A			2.5116 g	100 mL	4724	06/28/16 16:39	TDA	TAL RCH

## Client Sample ID: Matrix Spike

Date Collected: 05/25/16 14:00

Date Received: 05/26/16 16:00

## Lab Sample ID: 300-3142-A-1-H MSI

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		20	2.5066 g	100 mL	4723	06/20/16 17:54	TDA	TAL RCH
Total/NA	Prep	3060A			2.5066 g	100 mL	4724	06/28/16 16:39	TDA	TAL RCH

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Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

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**Method Summary**

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

Method	Method Description	Protocol	Laboratory
7196A	Chromium, Hexavalent	SW846	TAL RCH

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

## Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-043

TestAmerica Job ID: 300-3246-1  
SDG: WC1149

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3246-1	B35VP7	Soil	06/09/16 08:30	06/09/16 13:55

## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3246-1

SDG Number: WC1149

Login Number: 3246

List Number: 1

Creator: Bock, Julie A

List Source: TestAmerica Richland

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	